

Research Note 79-17

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PREDICTING INSTITUTIONAL RATINGS OF LEADERSHIP ABILITY
FOR MALE AND FEMALE CADETS

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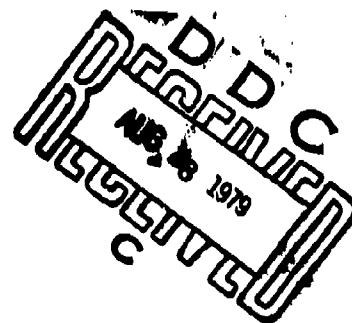
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) *The purpose of this report is to discover those variables associated with leadership ratings of male and female cadets throughout their first year at the United States Military Academy. Physical aptitude, organizational commitment, and a masculine self-image are positively related to high leadership scores during basic training. Additionally, these variables continue to be related to leadership ratings for women throughout the first academic year, but the same is not true for men. Plans to further examine these relationships are outlined.		

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Predicting Institutional Ratings of Leadership Ability for Male and Female Cadets

Men and women entering the United States Military Academy at West Point are the future leaders of the Regular Army. It is essential, then, that these cadets be carefully selected to maximize the probability that they will succeed in their leadership roles. The Academy conducts extensive research to achieve this goal. Researchers have shown that high school rank, physical aptitude, and scores on the leadership potential scale are predictive of leadership ratings, as measured through the Leadership Evaluation System (LES) ratings of cadets throughout their career at the Academy (Priest, 1974; Wise, 1969).

Since 1976, when women were admitted to West Point, researchers need to determine if those factors which predict leadership ratings for men are equally predictive of these scores for women. This is the first purpose of this report. Cadet leadership ratings are taken at several different points in their cadet career. This repeated measurement strategy allows us to check for differences in predictor-criterion relationships across time. A second purpose of this report is to examine such relationships for the three different time periods at which criterion measures were taken during the first year at West Point (immediately

after Cadet Basic Training, the end of the first academic semester, and the end of the second academic semester).

The variables from the Project Athena data set to be used as predictors in the analyses reported here were collected at several different points in time. Some were collected prior to admission to West Point, while others were collected immediately prior to Cadet Basic Training during the initial orientation period. Still other measures were taken at different points during the cadets' first year at the Academy.

In summary, the focus of this paper is to evaluate potential predictors of leadership ratings. These predictor variables were collected over a time period ranging from the application stage to the end of these cadets' first year at the Academy. The predictor-criterion relationships are evaluated separately for male and female cadets and across three different points of criterion assessment.

Method

Subjects

Subjects were male ($n = 1024$) and female ($n = 86$) plebe cadets at the United States Military Academy in the Class of 1980.

Leadership Ratings

The United States Military Academy has developed a system for making leadership ratings on plebe cadets through four sources of information: (a) sociometric ratings by peers in the same class and company (PEER), (b) sociometric ratings by 3rd Classmen in the same company (UPPEER), (c) a rating by the company tactical officer (TAC),

and (d) a series of trait ratings by the cadet chain of command (COC; Priest, 1975). For 4th class cadets, these measures are taken after Cadet Basic Training and at the end of each semester of their first academic year. Composites of these four ratings are developed for each time period: after CBT (CBTLES), after the first semester (MP101), and after the second semester (MP102). As can be seen in Table 1, the intercorrelations among these composites and their component scores are quite high. Equally high intercorrelations were found for ratings of male and female cadets, analyzed

Insert Table 1 about here

separately. For our purposes, then, leadership ratings will be defined by the composite scores for each time period (CBTLES, MP101, MP102).

Predictors

The Project Athena data set provided us with a large set of possible predictors, which we have logically assigned to the five general categories listed in Table 2: physical, attitudinal, personality, demographic, and intellectual. Examples of each category are marksmanship, organizational commitment, masculinity, sex, and Scholastic Aptitude Test scores, respectively. Unfortunately, there were no intellectual variables available to us at the time of these analyses.

Insert Table 2 about here

Each of the predictor variables listed in Table 2 has been described in considerable detail in previous technical reports dealing with Project Athena data (Houston, 1976; Priest, Prince & Vitters, 1977).

Because of the large number of subjects ($N = 1110$) in this data set, a significant correlation is not necessarily meaningful. We decided upon an arbitrary cut-off correlation of .20 as the level of association we will discuss in this report. Thus, the following discussion is restricted to variables which correlated with leadership ratings at approximately a $r = .20$. (Even when we examine women separately, and thus are working with a greatly reduced sample size ($n = 86$), $r = .20$ is significant at $p < .05$).

Results

The most interesting findings concern the differences in what is significant for men and women, and differences in the duration of these effects (see Table 2). The strongest correlate of leadership ratings, taken after basic training (CBTLES), is the cadet score on the physical aptitude examination (PAE), male ($r = .36$) and female ($r = .40$). Similar strong effects are found for scores on a scale measuring cadets' attitudes toward physical activity (PAS; $r = .22$ for men; $r = .37$ for women). It is interesting to note that this relationship disappears

the school year for men, but remains for women (PAE with MP101, $r = .24$; PAE with MP102, $r = .18$, $p = .082$; PAS with MP101, $r = .27$; PAS with MP102, $r = .20$, $p = .073$). Although PAS and PAE are assessed early in a cadet's career, these scores are related to women's leadership ratings throughout their first year at the academy.

The continuing relationship of physical measures to long-term leadership ratings is again demonstrated with counts of dropping out of the two-mile runs (FALLOUT) during CBT. The more a woman falls out during CBT, the lower is her leadership rating after CBT ($r = -.58$) and even throughout the academic year (MP101, $r = -.44$; MP102, $r = -.34$). FALLOUT is not related to leadership ratings taken at any time for men. There are very few men who failed to complete the two-mile runs ($\bar{X} = .06$, $s = .44$), while women dropped out more frequently and there was greater variability among the women themselves ($\bar{X} = 2.57$, $s = 3.32$). Because of the low variability among these scores for men, it is no wonder that FALLOUT fails to correlate with leadership ability for men.

Moreover, marksmanship scores during CBT are positively related to leadership ratings after CBT for men ($r = .22$) and throughout the school year for women (MP101, $r = .24$; MP102, $r = .27$). Again, we have evidence that the halo effect of positive physical performance

scores persists for women throughout the academic year. Conversely, poor physical scores for women negatively affect leadership ratings throughout the first academic year.

Finally, one personality variable, masculinity (as measured by male-valued items on the Personal Attributes Questionnaire) was related to CBTLES for both men ($r = .20$) and women ($r = .35$) and MP101 for women ($r = .25$). Men and women who rated themselves as being more masculine received higher leadership scores than did their counterparts with less masculine self-images. Additionally, organizational commitment was positively related to leadership scores throughout the academic year for women only (MP101, $r = .21$; MP102, $r = .19$).

Discussion

These results paint a picture of leadership ratings at West Point that is related to what is stereotypically masculine--physical prowess, a masculine self-image, and organizational commitment (stereotypically, a higher level of commitment to a career is expected from men (O'Leary, 1974; Rosen, Jerdee & Prestwich, 1975)). It is particularly interesting that these characteristics are more strongly and positively associated with high leadership ratings for women than for men and that these relationships are more likely to endure for women throughout their entire first year at the academy. In a traditionally male-oriented

culture, leadership seems to be related to masculinity, both for men and for the newly-introduced women cadets.

These results should be regarded as preliminary. Seventy-eight potential predictors of three sets of leadership ratings were examined. Only meaningful (arbitrarily defined as $r > .20$) correlations were examined, with an eye to discovering patterns of interpretable relationships. The findings are encouraging and merit further work.

This ongoing work concerning predictions of LES ratings focuses on three major issues. (a) Five categories of predictors were defined. It appears that physical measures are particularly related to leadership ratings. Are the other categories of variables also useful predictors? And, what is the relative strength of each of these categories? For example, are physical abilities stronger predictors of leadership rating scores than are intellectual skills? (b) Will sex differences appear regarding the significance and strength of these categories as predictors? It appears that physical factors are initially important for both male and female cadets, and that these physical attributes continue to affect the leadership ratings of women throughout their entire first year. (c) Finally, are there other time differences? Since MP101 and MP102 are leadership ratings collected during the academic year, it may be possible that intellectual variables influence MP measures to a greater extent

then intellectual variables affected leadership ratings measured after CBT. Analyses to answer these questions are underway.

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Table 1

Intercorrelations of LES Composites and Components

	CBTLES	MP101	MP102	UPPER1	PEER1	TAC1	COC1	UPPER2	PEER2	TAC2	COC2
CBTLES ^a	1.00	.62/.66	.53/.53	.54/.54	.55/.50	.46/.57	.37/.44	.50/.44	.51/.57	.48/.45	.24/.20
MP101	.61	1.00	.79/.81	.80/.85	.84/.90	.89/.94	.69/.75	.71/.61	.75/.81	.71/.76	.43/.46
MP102	.53	.79	1.00	.71/.78	.74/.76	.66/.76	.51/.52	.85/.83	.87/.90	.92/.92	.65/.65
UPPER1	.55	.80	.71	1.00	.72/.80	.60/.71	.45/.55	.77/.74	.67/.77	.57/.67	.34/.41
PEER1	.55	.84	.74	.73	1.00	.64/.76	.51/.63	.62/.59	.82/.84	.62/.66	.42/.43
TAC1	.45	.90	.66	.60	.65	1.00	.57/.68	.54/.53	.57/.72	.64/.74	.34/.47
COC1	.36	.70	.51	.45	.52	.58	1.00	.44/.40	.49/.52	.45/.49	.32/.30
UPPER2	.51	.70	.84	.77	.62	.54	.43	1.00	.76/.78	.66/.63	.44/.50
PEER2	.53	.76	.87	.68	.82	.58	.48	.76	1.00	.69/.74	.51/.52
TAC2	.47	.72	.92	.58	.62	.64	.45	.65	.69	1.00	.50/.50
COC2	.23	.43	.65	.35	.42	.35	.32	.44	.51	.50	1.00

Note: The components of CBTLES were unavailable. Correlations in the lower triangle are for all leaders. In the upper triangle, the correlations are for men/women.

^aThe variable name abbreviations used here conform to those used in previous United States Military Academy Office of Institutional Research technical reports. The suffix 1 refers to the first semester ratings and 2 refers to the second semester ratings.

Table 1
Means, Standard Deviations, and Correlations of All Predictors
Used Measures of Leadership Ability.

	All Cadets (N = 1110)					Male Cadets (N = 1024)					Female Cadets (N = 86)				
	CBT	MP101	MP102	\bar{X}	S	CBT	MP101	MP102	\bar{X}	S	CBT	MP101	MP102	\bar{X}	S
PHYSICAL															
PAS ^a	.44	.19	.19	333.34	107.60	.34	.17	.19	335.37	78.12	.40	.24	.18	281.18	71.43
PAB	.23	.16	.18	63.23	9.69	.22	.13	.17	63.33	9.73	.37	.27	.19	62.16	9.13
Marksmanship	.23	.14	.15	48.57	7.34	.22	.13	.11	48.61	7.38	.11	.23	.27	45.77	6.46
Fallouts	-.32	-.13	-.14	.24	1.16	-.09	-.11	-.07	.06	.44	-.38	-.44	-.34	2.37	1.38
ATTITUDINAL															
AMS 1	-.17	-.01	-.01	42.4	11.86	-.04	.01	.02	42.36	9.93	-.16	-.17	.03	37.29	8.63
AMS 2	-.13	-.03	-.03	40.22	13.04	-.03	-.01	.01	39.72	11.17	-.13	-.14	-.04	37.41	8.33
Military Commit.	.10	.03	-.03	37.67	13.77	.09	.02	-.04	38.24	13.74	.13	.10	.09	34.95	13.88
Positive to graduate	.10	.06	.05	73.06	17.84	.09	.06	.04	73.34	17.83	.03	.01	0	67.77	19.09
Organis. Commit. 1	.04	.04	.06	46.97	11.38	.03	.03	.06	47.72	9.64	.17	.13	.07	47.71	10.18
Organis. Commit. 2	.04	.10	.07	49.82	11.39	.08	.10	.07	50.72	9.43	.14	.21	.19	51.30	9.38
Satis. w/Academy	.06	.03	.06	31.03	7.64	.03	.04	.03	31.63	6.83	.12	.14	.19	30.07	6.67
PERSONALITY															
Roster 1	-.01	-.04	-.03	7.43	4.07	-.01	-.04	-.02	7.33	4.01	.03	-.03	-.04	7.81	3.87
Roster 2	-.03	-.06	-.06	6.88	4.11	-.03	-.07	-.03	6.70	4.03	-.12	-.16	-.08	7.23	3.80
Test Anxiety 1	-.02	.02	.02	4.74	3.33	0	.01	.02	4.73	3.31	.14	.13	.09	5.84	3.33
Test Anxiety 2	0	-.04	-.03	5.13	3.47	.01	-.06	-.04	5.19	3.38	.10	.16	.17	6.01	3.93
Emotionality	-.19	-.08	-.09	1.29	1.04	-.12	-.08	-.08	1.32	1.03	-.02	.06	.17	2.37	.79
PAQP 1	.13	.13	.13	21.22	4.34	.16	.14	.13	21.30	3.68	.04	.10	.06	22.22	3.87
PAQP 2	.04	.07	.07	21.76	4.99	.04	.06	.06	22.10	4.03	-.13	-.06	.07	23.14	3.39
PAQM 1	.20	.14	.11	22.63	4.84	.20	.13	.11	23.09	4.03	.14	.16	.02	22.03	4.19
PAQM 2	.23	.17	.13	23.40	3.33	.20	.16	.12	23.98	4.31	.33	.26	.13	22.08	4.48
DEMOGRAPHICS															
High School Clubs	-.04	-.04	-.03	9.81	3.44	-.04	-.04	-.04	9.61	3.23	.04	-.03	-.08	11.99	4.36
College Courses	-.04	.03	.03	6.33	1.34	-.04	.04	-.04	6.36	1.36	-.12	-.09	-.23	6.47	1.13

^aThe variable name abbreviations used here conform to those used in previous United States Military Academy Office of Institutional Research technical reports. The suffix 1 refers to the first semester ratings and 2 refers to the second semester ratings.